



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: )  
Dobbs *et al.* )  
Serial No.: 09/153,644 ) Group Art Unit: 1615  
Filed: September 15, 1998 ) Examiner: Joynes, Robert M.  
For: "IMPROVED HAIR SPRAY AND )  
CONSUMER SPRAYS WITH REDUCED )  
VOLATILE ORGANIC COMPOUNDS" )

**SECOND DECLARATION OF SUZANNE DOBBS PURSUANT 37 C.F.R. § 1.132**

Assistant Commissioner for Patents  
Washington, D.C. 20231

NEEDLE & ROSENBERG, P.C.  
Suite 1200, The Candler Building  
127 Peachtree Street, N.E.  
Atlanta, Georgia 30303-1811

Sir:

I, Suzanne Dobbs, declare as follows:

1. I am an inventor of the subject matter of the above-identified patent application.
2. I am a Technical Service Technologist with Eastman Chemical Company. I have served in this capacity since 1994.
3. I have worked at Eastman Chemical Company for a total of 17 years, six years in R&D Polymers Division, three years in New Applications Development, and eight years in Technical Service Formulated Products. I have an A.S. degree in Chemistry.
4. While developing the subject matter of the above-identified patent application, the inventors of the application discovered that the odor associated with methyl acetate is substantially reduced when combined with ethanol and subsequently sprayed.



5. The following comparisons were performed under my direction and supervision.
6. Several hair care compositions were prepared using various solvents in combination with methyl acetate as shown below. Sample series 1 and 2 are aerosol compositions with a VOC propellant. Sample series 3 and 4 are aerosol compositions with a mixture of VOC and non-VOC propellants, with sample 4 being anhydrous. Sample series 5 and 6 are pump (non-aerosol) sprays. The fixative is Resyn 28-2930 with an INCI designation of VA/Crotonates/Vinyl Neodecanoate Copolymer. The neutralizer is aminomethyl propanol.

Sample \ Component*	1(a)	2(a)	3(a)	4(a)	5(a)	6(a)
Fixative	4.0	4.0	4.0	4.0	4.0	4.0
Neutralizer	0.4	0.4	0.4	0.4	0.4	0.4
Methyl Acetate	5.0	25.0	5.0	25.0	5.0	25.0
Ethanol	20.0	20.0	40.0	39.6	55.0	55.0
Water	35.6	15.6	19.6	0	35.6	15.6
Dimethyl Ether	35.0	35.0	15.0	15.0	-	-
1,1-difluoroethane	-	-	16.0	16.0	-	-

\*Component amounts represent weight percent of total composition

Sample \ Component*	1(b)	2(b)	3(b)	4(b)	5(b)	6(b)
Fixative	4.0	4.0	4.0	4.0	4.0	4.0
Neutralizer	0.4	0.4	0.4	0.4	0.4	0.4
Methyl Acetate	5.0	25.0	5.0	25.0	5.0	25.0
Acetone	20.0	20.0	40.0	39.6	55.0	55.0
Water	35.6	15.6	19.6	0	35.6	15.6
Dimethyl Ether	35.0	35.0	15.0	15.0	-	-
1,1-difluoroethane	-	-	16.0	16.0	-	-

\*Component amounts represent weight percent of total composition

Sample \ Component*	1(c)	2(c)	3(c)	5(c)	5(c)	6(c)
Fixative	4.0	4.0	4.0	4.0	4.0	4.0
Neutralizer	0.4	0.4	0.4	0.4	0.4	0.4
Methyl Acetate	5.0	25.0	5.0	25.0	5.0	25.0
MEK	20.0	20.0	40.0	39.6	55.0	55.0
Water	35.6	15.6	19.6	0	35.6	15.6
Dimethyl Ether	35.0	35.0	15.0	15.0	-	-
1,1-difluoroethane	-	-	16.0	16.0	-	-

\*Component amounts represent weight percent of total composition

Sample	1(d)	2(d)	3(d)	4(d)	5(d)	6(d)
Component*						
Fixative	4.0	4.0	4.0	4.0	4.0	4.0
Neutralizer	0.4	0.4	0.4	0.4	0.4	0.4
Methyl Acetate	5.0	25.0	5.0	25.0	5.0	25.0
Ethyl Acetate	20.0	20.0	40.0	39.6	55.0	55.0
Water	35.6	15.6	19.6	0	35.6	15.6
Dimethyl Ether	35.0	35.0	15.0	15.0	-	-
1,1-difluoroethane	-	-	16.0	16.0	-	-

\*Component amounts represent weight percent of total composition

7. The following observations were made from the comparative samples.

Observations Sample	Appearance of Sample	Odor from Spray-out	Effect on Acetate Fabric <sup>1</sup>
1(a) Ethanol/ Methyl Acetate	Clear	Milder than 1(b)	Appears unaffected (No visible change)
1(b) Acetone/ Methyl Acetate	Clear	Stronger than 1(a)	More brittle than 1(a)
1(c) MEK/ Methyl Acetate	Milky with increased viscosity <sup>2</sup>	-	-
1(d) Ethyl Acetate/ Methyl Acetate	Milky with increased viscosity <sup>2</sup>	-	-

<sup>1</sup>For all samples, the fixative in the formulation imparts a slight stiffness to the fabric.

<sup>2</sup>Sample is unacceptable due to incompatibility of components. No further testing conducted.

Observations Sample	Appearance of Sample	Odor from Spray-out	Effect on Acetate Fabric <sup>1</sup>
2(a) Ethanol/ Methyl Acetate	Slightly hazy	Milder than 2(b)	Appears unaffected (No visible change)
2(b) Acetone/ Methyl Acetate	Slightly hazy	Stronger than 2(a); stronger organic solvent odor	More brittle than 2(a)
2(c) MEK/ Methyl Acetate	Hazy with small bottom layer <sup>2</sup>	-	-
2(d) Ethyl Acetate/ Methyl Acetate	Cloudy with sediment <sup>2</sup>	-	-

Observations Sample	Appearance of Sample	Odor from Spray-out	Effect on Acetate Fabric <sup>1</sup>
3(a) Ethanol/ Methyl Acetate	Clear	Mild	Appears unaffected (No visible change)
3(b) Acetone/ Methyl Acetate	Incompatible; separates into layers <sup>2</sup>	-	-
3(c) MEK/ Methyl Acetate	Cloudy/milky with two layers <sup>2</sup>	-	-
3(d) Ethyl Acetate/ Methyl Acetate	Milky; separates upon setting <sup>2</sup>	-	-

<sup>1</sup>For all samples, the fixative in the formulation imparts a slight stiffness to the fabric.

<sup>2</sup>Sample is unacceptable due to incompatibility of components. No further testing conducted.

Observations Sample	Appearance of Sample	Odor from Spray-out	Effect on Acetate Fabric <sup>1</sup>
4(a) Ethanol/ Methyl Acetate	Slightly hazy	Mildest	Appears unaffected (No visible change)
4(b) Acetone/ Methyl Acetate	Slightly hazy	Sharper/stronger than 4(a)	Brittle, curls; tears easily
4(c) MEK/ Methyl Acetate	Slightly hazy with slight sediment	Stronger than 4(a)	Brittle; tears easily
4(d) Ethyl Acetate/ Methyl Acetate	Hazy with sediment <sup>2</sup>	—	—

Observations Sample	Appearance of Sample	Odor from Spray-out	Effect on Acetate Fabric <sup>1</sup>
5(a) Ethanol/ Methyl Acetate	Clear	Very mild	Appears unaffected (No visible change)
5(b) Acetone/ Methyl Acetate	Very slightly hazy	Stronger than 5(a)	More brittle than 5(a)
5(c) MEK/ Methyl Acetate	Milky; separated into layers <sup>2</sup>	—	—
5(d) Ethyl Acetate/ Methyl Acetate	Milky with slight sediment <sup>2</sup>	—	—

<sup>1</sup>For all samples, the fixative in the formulation imparts a slight stiffness to the fabric.

<sup>2</sup>Sample is unacceptable due to incompatibility of components. No further testing conducted.

Observations Sample	Appearance of Sample	Odor from Spray-out	Effect on Acetate Fabric <sup>1</sup>
<b>6(a)</b> Ethanol/ Methyl Acetate	Very slightly hazy	Milder; more pleasant than 6(b)	Appears unaffected (No visible change)
<b>6(b)</b> Acetone/ Methyl Acetate	Very slightly hazy	Stronger than 6(a)	Curls; more brittle than 6(a)
<b>6(c)</b> MEK/ Methyl Acetate	Hazy; separated into layers <sup>2</sup>	—	—
<b>6(d)</b> Ethyl Acetate/ Methyl Acetate	Opaque <sup>2</sup>	—	—

<sup>1</sup>For all samples, the fixative in the formulation imparts a slight stiffness to the fabric.

<sup>2</sup>Sample is unacceptable due to incompatibility of components. No further testing conducted.

8. As shown in the comparisons, the odors of the samples containing methyl acetate and ethanol, regardless of the specific weight percentages, were significantly improved relative to those samples containing methyl acetate with a solvent other than ethanol.
9. I believe that a strong, unpleasant odor, hinders consumer acceptance of a consumer hair care product.
10. Since methyl acetate has a characteristic, unpleasant odor, the above results of a substantially reduced, or masked, odor when sprayed from a liquid containing methyl acetate and alcohol were surprising.
11. I believe this surprisingly improved odor would be met with greater consumer acceptance when provided in a consumer product.
12. Further, the effects on acetate fabric of the samples containing methyl acetate and ethanol were significantly improved relative to those samples containing methyl acetate with a solvent other than ethanol.
13. The significantly improved effects when the methyl acetate and ethanol samples were placed in contact with acetate fabric were surprising as in all combinations other than the methyl acetate and ethanol, there are significant detrimental effects to the fabric.

14. It is undesirable to consumers to apply a consumer product that may damage clothing or other fabric that the product may come into contact with. Therefore, this surprisingly improved effect when the combination comes into contact with acetate fabric would be very desirable to consumers.
15. I believe that the improved effects resulting from the combination of ethanol and methyl acetate occur irrespective of the amount of fixative present within the claimed range of 4 – 8 % of the total formulation.
16. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful, false statements, perjury, and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that any such willful, false statement or perjury may jeopardize the validity of the application or any patent issued thereon.

Suzanne Dobbs  
Suzanne Dobbs

2/28/03  
Date